

Name: \_\_\_\_\_

# Factoring – Sum and Differences of Two Cubes (Version 1)

Directions: Please fully factor the following.

1.  $x^3 + y^3$   
 $\begin{matrix} x^2 & y^2 \\ x & y \end{matrix}$

$(x+y)(x^2 - xy + y^2)$

2.  $m^3 - n^3$   
 $\begin{matrix} m^2 & n^2 \\ m & n \end{matrix}$

$(m-n)(m^2 + mn + n^2)$

3.  $b^3 - 27$   
 $\begin{matrix} b^2 & 9 \\ b & 3 \end{matrix}$

$(b-3)(b^2 + 3b + 9)$

4.  $g^3 + 125$   
 $\begin{matrix} g^2 & 25 \\ g & 5 \end{matrix}$

$(g+5)(g^2 - 5g + 25)$

5.  $k^{21} + 1$   
 $\begin{matrix} k^{14} & 1 \\ k^7 & 1 \end{matrix}$

$(k^7+1)(k^{14} - k^7 + 1)$

6.  $8x^3 + y^{12}$   
 $\begin{matrix} 4x^2 & y^8 \\ 2x & y^4 \end{matrix}$

$(2x+y^4)(4x^2 - 2xy^4 + y^8)$

7.  $27 - 64y^3$   
 $\begin{matrix} 9 & 16y^2 \\ 3 & 4y \end{matrix}$

$(3-4y)(9 + 12y + 16y^2)$

8.  $x^3y^9 + 125$   
 $\begin{matrix} x^2y^6 & 25 \\ xy^3 & 5 \end{matrix}$

$(xy^3+5)(x^2y^6 - 5xy^3 + 25)$

GCF  
is  
8

9.  $64x^{15} - 8$

$8(8x^{15} - 1)$   
 $\begin{matrix} 4x^{10} & 1 \\ 2x^5 & 1 \end{matrix}$

$8(2x^5 - 1)(4x^{10} + 2x^5 + 1)$

GCF  
is  
2

10.  $2a^{27} + 54y^3$

$2(a^{27} + 27y^3)$   
 $\begin{matrix} a^{18} & 9y^2 \\ a^9 & 3y \end{matrix}$

$2(a^9 + 3y)(a^{18} - 3a^9y + 9y^2)$